

## STUDIES ON THE COLEOPTERA OF THE PACIFIC NORTHWEST

II: Carabidae: Bembidiini

MELVILLE H. HATCH

*University of Washington, Seattle*

The specimens on which this paper is based are in the collection of the author at the University of Washington.

### *Bembidion* (*Metallina*)<sup>1</sup> *keechelus* Hatch, sp. n.

Shining black, without aeneous lustre, the first four segments of the antennae below and the legs piceous; head with frontal striae sinuate, divergent behind the anterior supraorbital seta, the eyes large; pronotum about three-fifths as long as wide, widest just in front of middle, the base equal in width to the apex, the side margin strongly arcuate in front, sinuate in front of the nearly rectangular carinate hind angles, the basal impressions deep and bistriate and connected by a feebly impressed feebly rugose transverse impression; elytra with first and eighth striae entire and impressed, the second through the sixth striae feebly impressed, obsolete towards apex, the first through the seventh striae and the scutellar stria coarsely punctate, the eighth distinct from the margin, the third interval with two dorsal punctures distant from the third stria, the marginal line obtusely angulate at the humerus and inwardly prolonged to the base of the fourth stria; mentum with a large entire tooth; length 3.75 mm.

Type: L. KEECHELUS, WASHINGTON, May 3, 1935, Hatch and Wilson. Distinguished from *aleneanum* Csy., *perturbatum* Csy., and *atrolucens* Csy. by its lack of aeneous lustre, and from *dyschirinum* LeC. (*agitabile* Csy.) by the coarser punctures of the elytral striae that become obsolete behind the middle rather than at the middle as in that species.

### *Bembidion* (*Trechonepha*) *rainieri* Hatch, sp. n.

Shining black, the trochanters feebly picescent; head, pronotum, and elytra above strongly aeneous and strongly alutaceous, the elytra especially coarsely deeply and opaquely alutaceous; pronotum transversely quadrate, about two-thirds as long as wide, the

<sup>1</sup>For the status of the subg. *Metallina* Mots. in America see Hatch, Jour. N. Y. Ent. Soc. LVII, 1949, pp. 145-146.

apex about six-sevenths as wide as the base, the sides broadly arcuate in front, sinuate and subparallel before the slightly obtuse and carinate hind angles, the median line present at middle and deeply impressed, the apical and basal transverse impressions feeble, the basal impressions large and feebly bistriate and more coarsely alutaceous than the rest of the pronotum; elytra with a scutellar and eight discal striae, the eighth stria deeply impressed, the others feebly impressed except the first, second, and fifth which are well impressed at extreme apex, the striae not or very vaguely punctate, the third stria with two dorsal punctures in large impressed foveae; length 5-5.75 mm.

Type and five paratypes: MT. RAINIER, WASHINGTON, Sunrise Park, Sept. 6, 1934, M. H. Hatch. Six paratypes: Sunrise Park, (Aug. 27, 1931), Paradise Park (Aug. 20, 1934; Sept. 27, 1934; July 18, 1937; July 28, 1946), both on Mt. Rainier. The types and paratypes were taken between five and six thousand feet. Differs from previously described North American species of the subgenera *Trechonepha* and *Plataphus* (*Micromelomalus* Csy.) by its coarsely deeply opaquely alutaceous elytra.

***Bembidion* (*Trechonepha*) *stillaguamish* Hatch, sp. n.**

Shining black, above finely alutaceous, the basal antennal segment and legs rufous, the elytra rufo-flavous with the lateral margins and epipleurae piceous or rufous, the antennae and abdomen black to rufous; pronotum about three-fourths as long as wide, apex about nine-tenths as wide as base, the carinate hind angles rectangular, the side margins in front of the hind angles subparallel and then sinuate, the median line impressed at middle, obsolete at either end, the anterior and posterior transverse impressions feeble, the large basal impressions vaguely bistriate; elytral striae with eighth strongly impressed, the others feebly but distinctly impressed except the first, second, and fifth, which are strongly impressed at extreme apex, the striae not or very vaguely punctate, the third stria with two dorsal punctures in large impressed foveae, the marginal line arcuate at humerus and extending inward to the fifth elytral stria only; length 3.7-4.6 mm.

Type and eight paratypes: KING Co., WASHINGTON, Snoqualmie R., Snoqualmie Falls, May 13, 1928, M. H. Hatch. 48 additional paratypes from the following western Washington localities: Chehalis, Duvall, Green R., North Bend (Maloney's Grove), Snoqualmie Falls, Soda Springs (Snohomish Co.), Stillaguamish R., Van Horn, White R. (Mt. Rainier). Two paratypes from Silver Cr. Falls and White R. (Mt. Hood), Ore.

Distinguished from other members of the subgenus by its pale color, narrow elytra, and less extensive basal elytral marginal line.

BEMBIDION (PLATAPHUS<sup>2</sup>) PLANIUSCULUM MANN.

I denominate specimens with pale elytra, legs, and basal antennal segment *Bembidion planiusculum* Mann., ab. *pallidum* nov. Type and five paratypes: PIERCE CO., WASHINGTON, White River, White River Camp, Aug. 27, 1927, M. H. Hatch. 52 paratypes: American R., Ellensburg, Longmire, Mt. Baker, Parkway, Snoqualmie Falls, Sullivan L., Sultan, Swauk C., Wenatchee, White R. Camp, Yakima R. (near Ellensburg), in Washington; Morrissey, B. C.; Cornucopia and Multnomah Falls, Ore. There is some evidence of intergradation with the typical form, but typical examples of the aberration give every evidence of being fully matured rather than teneral individuals. They are distinguished from the pale *B. (Trechonepha) stillaguamish* described above by the feebly or unimpressed dorsal punctures.

*Bembidion (Plataphus) farrarae* Hatch, sp. n.

Shining black, the elytra very faintly iridescent, above very finely alutaceous, the extreme bases of the legs picescent; pronotum about two-thirds or slightly more as long as wide, the apex about nine-tenths as wide as base, the side margins in front of the carinate subrectangular hind angles very briefly subparallel and then sinuate, the median line impressed, obsolete at either end, the apical and basal transverse impressions well marked to feeble, the basal impressions bistriate; elytra with striae well impressed, the sixth and seventh more feebly so, the striae vaguely but more or less evidently punctate, the third stria with the two dorsal punctures not or very feebly impressed, the marginal line arcuate at apex and extending to the base of the fourth stria; length 3.2-4.7 mm.

Type and 11 paratypes: MT. RAINIER, WASHINGTON, Sluskin Falls, July 29, 1932. 36 paratypes from the following localities on Mt. Rainier; Longmire, N. Puyallup R., Paradise Park, Ricksecker Point, below Sluskin Falls, Tipsoo L. Named for Mrs. Elizabeth Farrar Kinney who pointed out to me many years ago

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<sup>2</sup>Examination of an example of the Palaearctic *B. prasinum* Duft., the type of the subgenus *Plataphus* Mots., convinces me that Casey's *Micromelomalus* is synonymous with *Plataphus*. I have not recognized any of the species (*blanditum* Cay., etc.) that Casey assigned questionably to *Plataphus*, but suspect they belong in his *Trechonepha*.

that our series of "*planiusculum*" was composite. Distinguished from *planiusculum* Mann. by the humeral line attaining the base of the fourth rather than the fifth elytral stria and from *parvulum* Notman by its subrectangular posterior pronotal angles.

***Bembidion* (Trachelonepha) kincaidi Hatch, sp. n.**

Shining black, above finely alutaceous, the legs and elytra and sometimes the occiput and abdomen piceous; head with tempora well developed but not particularly elongate; antennae elongate, about nine-tenths as long as the elytra; pronotum about four-fifths as long as wide, the base not quite as wide as the apex and broadly arcuate, the basal margin within the sharply obtuse hind angles evidently oblique, the side margins in front of the hind angles subparallel and then sinuate, the median line impressed at middle and obsolete at either end, the anterior transverse impression well developed, the basal transverse impression absent, the hind angles obscurely carinate, the basal impressions obscurely bi-striate; elytra together about four-sevenths as wide as long, the striae impressed, vaguely punctate, the third stria with two unimpressed dorsal punctures; male with first two tarsal segments dilated and spongy pubescent beneath; length 5.4-5.8 mm.

Type and five paratypes: MT. BAKER, WASHINGTON, IX-5-1912, T. Kincaid. Two paratypes: Seattle, Wash., July 30, 1929 and S. F. Skykomish R., Wash., July 4, 1928. Distinguished from *falsum* Blais. and *electum* Csy. by its piceous elytra and from *extensum* Csy. by its shorter elytra (twice as long as wide in *extensum*). Named for my good friend and former chief, Prof. Trevor Kincaid, who has had so many animals named after him that I am sure he will not object to one more!

*Bembidion* subj. *Pseudoperypus* Hatch nov.

Type of genus: *Bembidion chalceum* Dej. Established for those species of Casey's subgenus *Peryphus* Steph. in which the seventh elytral stria is better developed, being subequal in its development to the sixth stria and either deeply sulcate and moderately punctate as in *chalceum* Dej. and *reticolle* LeC. or coarsely punctate and feebly impressed as in *nigrum* Say, *concolor* Kby., *quadrulum* LeC., and *longulum* LeC. In general the group appears to include the species in the second part of Hayward's *honestum*-group (the humeri not being truly angulate) and in his *concolor*-group, and appears to include the species between 512 and 531 inclusive and between 589 and 593 inclusive in the Leng catalogue. As a

result, *Peryphus* is restricted to species with the seventh elytral stria reduced to an unimpressed sometimes subobsolete series of minute punctures.

*Bembidion* (*Peryphus*) *immaculosum* Hatch, sp. n.

Shining black, the elytra sometimes with faint piceous tinge, the legs picescent towards extreme base; pronotum about three-fifths as long as wide, the apex nearly nine-tenths as wide as the base, the carinate hind angles subobtuse or nearly rectangular, the side margins in front of the hind angles broadly sinuate curving out almost immediately, the anterior and posterior transverse impressions distinct, the latter coarsely vaguely punctate, the median line distinct behind the anterior transverse impression, the basal impressions large, bistrate, tuberculate; elytra with the striae moderately finely punctate for the basal two-thirds and finely impressed, the seventh stria an unimpressed series of punctures, the eighth stria deeply impressed and impunctate; length 4.2-5.8 mm.

Type and four paratypes: SPOKANE, WASHINGTON, July 15, 1927, M. C. Lane coll. 19 paratypes: Ewan, Hooper, Kahlotus, Newman L., Pullman, Ritzville, and Upper Grand Coulee in eastern Washington and Condon and Tygh Valley, Oregon. Related most closely to *nevadense* Ulke, from which it is distinguished by its immaculate elytra and of which it may be a color variety. Hayward (Trans. Am. Ent. Soc. XXIV, 1897, p. 76) says of *nevadense*: "Prothorax . . . as wide at base as apex," whereas I find the base about one-tenth wider than apex. This is mentioned to call attention to a systematic error in Hayward's monograph of over-estimating the width of the apex of the pronotum relative to the base, as revealed by a precise micrometer measurement from the crest of one anterior angle to the crest of the other.

*Bembidion* (*Peryphus*) *wenatchee* Hatch, sp. n.

Shining black, legs and antennae rufous, segments four to eleven of antennae with the apical portions more or less fuscous, elytra finely alutaceous and rufous, the scutellar region, a medio-lateral area, and the apex darker, separate subapical and humeral spots flavate, abdomen sometimes rufous; pronotum nearly seven-tenths as long as wide, the apex about nine-tenths as wide as base, the side margins before the carinate subrectangular hind angles subparallel and then sinuate, the transverse apical impression feeble, the transverse basal impression moderate and feebly rugose, the impressed median line present between the transverse apical and transverse basal impressions, the basal impressions bi-

striate; elytral striae impressed, obsoletely so towards apex, moderately punctate towards base, more finely to obsoletely so behind middle; length 5.8-6.3 mm.

Type: WENATCHEE, WASHINGTON, August 22, 1932, M. H. Hatch. Three paratypes: Moses Coulee, Wash.; Vantage, Wash.; Gold Hill, Ore. Distinguished from northwestern specimens of *rupicola* Kby. (*lucidum* LeC., *substrictum* LeC.) by its larger size (length 4.6-5.2 mm. in *rupicola*) and black rather than rufous body color. *Ustulatum* L. is distinguished by its darker elytral ground color, its smaller size (length 5.4-6.0 mm.) and the subequal width of the pronotal apex and base.

#### *Bembidion* (*Peryphus*) *fenderi* Hatch, sp. n.

Dark rufopiceous to rufous, shining, the elytra finely alutaceous, the legs, antennae, and mouthparts rufous, the elytra with the subapical and humeral spots virtually confluent resulting in a flavate elytra with only a common scutellar triangle and the apices darker, the suture variably dusky; pronotum about five-sevenths as long as broad, the apex about ninety-five percent as wide as the base, the side margins in front of the carinate hind angles subparallel and then sinuate, the apical and basal transverse impressions evident, the basal impressions bistriate; elytral striae finely impressed, finely distinctly punctate especially before the middle; length 5.8-7.0 mm.

Type and eight paratypes: SEAVIEW, WASHINGTON, July 25, 1930. 22 paratypes: Fort Canby, Long Beach (Pacific Co.), Moclips, Ocean Park, Oysterville, Sea View, Snag Is. (Pacific Co.), all in Washington. 19 paratypes: Cannon Beach, Gold Beach, Sea Side, Tillamook, Woods, all in Oregon. Apparently confined to the sea beach. Named in honor of my friend and collaborator, Mr. Kenneth M. Fender of McMinnville, Ore. This species is distinguished from other northwestern species of the same subgenus by the virtually confluent subapical and humeral elytral spots. Its averagely larger size and finely impressed elytral striae are likewise highly diagnostic. I place it next to *rupicola* LeC. and *wenatchee* Hatch (see above) in the classification.

#### *Bembidion* (*Notaphus*) *aberti* Hatch, sp. n.

Dark rufous, shining, the head evidently alutaceous, the pronotum and elytra nearly smooth, the antennae, legs, and most of

the elytra somewhat paler, the latter with obscurely darker areas about the scutellum, towards the median lateral margins, and towards the apex; pronotum nearly three-fourths as wide as the elytra together, about seven-eighths as long as wide, the apex not quite as wide as the base, the side margins in front of the somewhat variably minutely rectangular carinate hind angles briefly and feebly sinuate, the median line fine, the transverse apical impression feeble, the transverse basal impression rugose, the basal impressions bistriate; elytra with striae distinctly impressed and entire, distinctly punctate basally becoming obsolete punctate to impunctate behind the middle, the third interval with two dorsal punctures; length 3.8-4.4 mm.

Type and eight paratypes: L. ABERT, OREGON, June 16, 1938, M. H. Hatch. Distinguished from *obtusangulatum* LeC. by its general rufous color. It most closely resembles *scudderi* LeC., from which it is distinguished by the third elytral interval possessing two rather than three dorsal punctures, its smaller size, more rufous body, and less distinctly alutaceous elytra.

*Bembidion* (s. str.) *alutaceum* Hatch, sp. n.

Black, shining, the legs except the apices of the femora piceous; head and pronotum very finely alutaceous; pronotum cordate, nearly four-fifths as long as wide, the base about nine-tenths as wide as the apex, the side margins narrowly reflexed, the sides in front of the minutely prominent carinate hind angles briefly subparallel and then sinuate, the hind margin just within the hind angles emarginate, the anterior transverse impression vague, the median line entire in front of the basal transverse impression which is deep and rugose with foveiform impressions between the rugae; elytra evidently alutaceous with a nebulous small subhumeral testaceous spot, the striae coarsely punctate and evidently impressed to apical fourth or fifth behind which both striae and punctures become obsolete; length 3 mm.

Type: BLUE MTS., OREGON, MOTTET MEADOW, Sept. 19, 1937, M. H. Hatch. Runs to *mutatum* G. and H. and *vegetum* Csy. in Casey's key (Mem. Coll. VIII, 1918, p. 151), from which it is distinguished by its more evidently alutaceous elytra with smaller subhumeral spot and more coarsely punctate more evidently impressed striae.

The two following new species of *Bembidion* subgenus *Diplocampa* Bedel belong to the *digressum*-group of Casey (Mem. Col. VIII, 1918, p. 155) characterized by alutaceous elytra. Hayward

(Trans. Am. Ent. Soc. XXIV, 1897, pp. 124-127) did not refer to this character in his treatment of the group, but I find the elytra nearly smooth in his *acutifrons* LeC., *cautum* LeC., and *assimile* Gyll. Casey found them smooth in *connivens* LeC. and *habile* Csy.

**Bembidion (Diplocampa) elizabethae Hatch, sp. n.**

Black, sometimes tinged with piceous, the basal antennal segment and the legs paler, the elytra usually with a brownish tinge, a lateral anteapical spot flavate, the apex and sometimes the suture and a vague humeral area variably and vaguely paler; elytra evidently microreticulate, the head and pronotum nearly smooth with only the faintest trace of microreticulation; pronotum about four-fifths as long as wide, the base subequal to the apex in width, the sides narrowly reflexed, usually briefly subparallel in front of the rectangular carinate hind angles, the basal impressions deep and bistriate, the anterior transverse impressions vague, the median line distinct, abbreviated towards apical and basal margins, the basal transverse impression deep, coarsely punctate; elytral striae impressed, coarsely punctate, the intermediate striae and the punctures more or less obsolete at apical third or fourth; length 2.8-3.2 mm.

Type and 7 paratypes: KING Co., WASHINGTON, LICHTEN SPRINGS, May 27, 1932, E. Farrar. 63 paratypes: Bay Center, Bothell, Cedar Mt., Chase L. (Snohomish Co.), Chehalis, Duvall, Evans Creek (King Co.), Enumclaw, Fall City, Fidalgo Is., Friday Harbor, Lewis and Clark State Park, Loveland, Martha L. (near Edmonds), Mt. Rainier (Paradise Park), Nasel R., Olympia, Plantation Pond (Seattle), Seattle, Silver L. (Snohomish Co.), Snoqualmie Falls, Sterling, and Vashon, all in western Washington. 3 paratypes: Dayton and McMinnville (K. M. and D. M. Fender, coll.), in western Oregon. I take pleasure in naming this species likewise for Mrs. Elizabeth Farrar Kinney.

From previously described species of the *digressum*-group *elizabethae* is distinguished by its smaller size, from *digressum* Csy. by its black ventral surface, and from *digressum* and *concretum* Csy. by its less transverse pronotum. From *anguliferum* LeC. it is further distinguished by its nearly smooth head and pronotum, its subequal pronotal base and apex, and by its distribution, being confined as far as at present known to the region west of the Cascade Mountains.



**Bembidion (Diplocampa) microreticulatum** Hatch, sp. n.

Black, the elytra frequently piceous or rufo-piceous with the apex sometimes vaguely paler, the basal antennal segment and legs piceous or rufo-piceous; elytra microreticulate, more finely so in male, the head and pronotum nearly smooth; pronotum about three-fourths as long as wide, the base and apex about equal in width, the sides of the pronotum narrowly reflexed, the side margins in front of the slightly obtuse carinate hind angles slightly to scarcely divergent and broadly sinuate, the basal impressions deep and bistriate, the anterior transverse impression vague, the median line fine, abbreviated towards the anterior and posterior margins, the basal transverse impression deep and punctate; elytral striae impressed, more feebly so towards side, moderately punctate, the intermediate striae and the punctures obsolete at apical fourth; length 3.3-3.8 mm.

Type ♂ and 2 paratypes (♂ and ♀): STICKNEY L., WASHINGTON, May 8, 1931, M. H. Hatch. 12 paratypes: Bothel, Dry Falls (Grand Coulee), Evans Cr. (King Co.), Martha L. (near Edmonds), Mt. Adams, Satus Creek, Seattle, Stickney L., Tieton Dam. Distinguished from other members of the *digressum*-group by its immaculate elytra. From *anguliferum* LeC. and *elizabethae* Hatch it is further distinguished by its somewhat more elongate form. From *acutifrons* LeC., which is likewise immaculate, it is distinguished by its microreticulate elytra and its more finely punctate elytral striae.

**TACHYS (TACHYURA) PARVULUS** DEJ.

This species is a native of south middle and southern Europe including southern England (Jeannel, Faune de France 39, 1941, p. 437), and has not before been recorded from North America. I have five specimens collected in western Washington: two from the University of Washington campus, Seattle, April 9, 1940; two from Cedar Mt., southeast of Seattle, May 22, 1941, and one, same locality, May 15, 1945. It is distinguished from other European and American species of the subgenus (Group IV of Hayward) by its entire impressed marginal elytral stria, and may be described briefly as follows:

Dark rufous, shining, the basal antennal segments and legs paler, the elytral apex evanescently paler; pronotum about seventenths as long as wide, the apex nearly as wide as base, the sides oblique in front of the briefly carinate hind angles, the anterior transverse impression vague, the basal transverse impression deep,

punctate, with three enlarged punctures at middle, the basal impressions obsolete; elytra with an entire impressed sutural and a marginal stria, the latter with one or two seta-bearing punctures anteriorly and about four such punctures posteriorly, the disc with four or five finely impressed striae abbreviated at about apical third, the striae not or obscurely punctate, the third stria with two dorsal punctures; length 2 mm.

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### SOME COLLECTIONS RECENTLY ACQUIRED BY THE CALIFORNIA ACADEMY OF SCIENCES

**THE DUDLEY MOULTON COLLECTION OF THYSANOPTERA (Purchase).** During the past year the Academy was fortunate enough to secure this important collection together with all of Moulton's literature and papers pertaining to the thrips. This collection is world-wide in scope, rich in Moulton types, and in those of other leading thysanopterists. It comprises some 25,000 slides.

**THE HEWES COLLECTION OF LEPIDOPTERA (Bequest).** Comprising 6572 neatly mounted and completely labelled specimens, this collection results from a nearly successful lifetime effort to acquire every kind of butterfly listed for America north of Mexico. Included in this number is a smaller collection of moths and one of foreign butterflies. The late Dr. Laurence I. Hewes was by profession one of the foremost U. S. highway engineers. His zeal as an amateur lepidopterist was well expressed in his article "Butterflies—Try and Get Them" (*National Geographic Mag.* 69:667-678, 1936).

**THE MAEHLER COLLECTION OF COLEOPTERA (Gift).** This is a general collection of North American beetles especially rich in Meloidae because of Mr. K. L. Maehler's special interest in the family. The collection totals 6159 specimens.

**THE HUBBARD INDEX COLLECTION OF THE FLEAS OF NEVADA (Gift).** Dr. C. Andresen Hubbard of Tigard, Oregon, has distributed among several institutions a number of index collection of the fleas of Nevada, to be used in reference to his publication on this subject (*Bull. S. Cal. Acad. Sci.*, 48:115-128, 1949). The collection received by the Academy is made up of 46 slides representing as many species.—E. S. Ross.